

Abstract of the Disclosure

An apparatus and method for generating a radio frequency (RF) signal and control signals are provided. In an apparatus for generating a radio frequency (RF) signal and control signals in which the current output from a plurality of light receiving elements is converted into voltage signals and the RF signal and the control signals are generated in response to the voltage signals, the apparatus includes an input data processing unit, a digital filter, a servo signal generating unit, a digital RF data generating unit, and a reference comparator. The input data processing unit performs time-sharing sampling on the voltage signals and converts the voltage signals into first digital signals in response to an analog/digital conversion clock signal having a predetermined period and a sequentially applied selection signal. The digital filter filters each of the first digital signals to modify the shape of the waveforms of the first digital signals and outputs the modified waveforms as second digital signals. The servo signal generating unit corrects delay time of the second digital signals and generates the control signals for servo control in response to the corrected signals. The digital RF data generating unit corrects delay time of the second digital signals before summing them to generate digital RF data. The reference comparator compares an average value of the digital RF data with the voltage level of the digital RF data in response to a predetermined demodulation clock signal and generates a non-return to zero (NRZ) signal in response to a compared result.